Attachment Styles and Personality Disorders: Their Connections to Each Other and to Parental Divorce, Parental Death, and Perceptions of Parental Caregiving

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ABSTRACT Attachment theory was explored as a means of understanding the origins of personality disorders. We investigated whether adult attachment styles and personality disorders share a common underlying structure, and how both kinds of variables relate to family background factors, including parental death, parental divorce, and current representations of childhood relationships with parents. A nonclinical group of 1407 individuals, mostly adolescents and young adults, were surveyed about their attachment styles, parental marital status, parental mortality status, perceptions of treatment by parents in childhood, and 13 personality disorders. Results indicated substantial overlap between attachment and personality-disorder measures. Two of the personality-disorder

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dimensions are related to the two dimensions of the attachment space; that is, there is a two-dimensional space in which both the attachment patterns and most of the personality disorders can be arrayed. The one personality-disorder factor that is unrelated to attachment appears akin to psychopathy. Both personality disorders and attachment styles were associated with family-of-origin variables. Results are discussed in terms of encouraging further research to test the idea that insecure attachment and most of the personality disorders share similar developmental antecedents.

According to the most recent *Diagnostic and Statistical Manual of the American Psychiatric Association* (APA), personality disorders are "enduring pattern[s] of inner experience and behavior that deviate markedly from the expectations of the individual's culture, [are] pervasive and inflexible, [have] an onset in adolescence or early adulthood, [are] stable over time, and [lead] to distress or impairment" (APA, 1994, p. 629). Some personality disorders are characterized by patterns of disordered cognitions (as in the Schizotypal and Obsessive-Compulsive disorders). Others are characterized by problems with emotions (as in the Histrionic and Borderline personality disorders). Virtually all personality disorders, however, are characterized by persistent difficulties in interpersonal relations, which is often their central feature (Widiger & Frances, 1985). For example, the Schizoid character appears defensively devoid of any interest in human interaction, whereas the Dependent character appears incapable of functioning without the aid of a close other (Bornstein, 1992; Livesley, Schroeder, & Jackson, 1990). Similarly, the Avoidant personality disorder is typically characterized by a simultaneous desire for, and fear of, close relationships (Sheldon & West, 1990).

Despite the increasing attention paid to personality disorders since publication of the third *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R) (APA, 1987), little is actually known about the etiology of these disorders. Several factors have been implicated, ranging from the genetic to the psychosocial (Benjamin, 1993/1996; Crowell, Waters, Kring, & Riso, 1993; Dahl, 1993; Dutton, 1994; Heard & Lake, 1986; Laport & Guttman, 1996; Livesley, Jang, Jackson, & Vernon, 1993; Mattick & Newman, 1991; Norden, Klein, Donaldson, Pepper, & Klein, 1995; Riso et al., 1996; Segal, 1988). There has been some discussion of possible connections between personality disorders and other well-known approaches to personality development (Ben-Amos, 1992; Bornstein, 1992; Glickhauf-Hughes & Wells, 1991; Paris, 1993; Vaillant, 1987), including attachment theory (Gacano, Meloy, & Berg, 1992; Heard &

Lake, 1986; Sack, Sperling, Fagen, & Foelsch, 1996; Shaver & Clark, 1994; Sheldon & West, 1990; Torgersen & Alnaes, 1992; Van der Kolk, Perry, & Herman, 1991; West & Keller, 1994; West & Sheldon, 1988; West & Sheldon-Keller, 1994; Whitely, 1994), but the few empirical studies have relatively small sample sizes. The purpose of the present study was to investigate possible connections between personality disorders and adult attachment patterns in a relatively large, nonclinical sample of young adults. Before describing the study, we will review relevant literature on attachment theory and research.

Literature Review

Research on attachment theory. Adult romantic love has been conceptualized as an attachment process that is conceptually parallel to most people's earliest relationship: infant to mother (Hazan & Shaver, 1987; Shaver & Hazan, 1993). Hazan and Shaver (1987) took advantage of Bowlby's (1969/1982, 1973, 1980) seminal writings on attachment theory and Ainsworth's discovery of three primary attachment types in infancy (Ainsworth, Blehar, Waters, & Wall, 1978) to propose that these same three attachment types—secure, avoidant, and anxious-ambivalent—exist in adulthood and color the ways in which adults experience romantic love and behave in romantic relationships. Attachment "style" therefore refers to characteristic patterns of experiencing romantic relationships. Hazan and Shaver (1987) devised a simple self-report measure of the three adult attachment styles, based on extrapolations from Ainsworth et al.'s (1978) descriptions of the three primary infant attachment patterns. According to the measure, secures are characterized by comfort with intimacy and an ability to depend on their partners; avoidants are characterized by fear of intimacy coupled with excessive self-reliance; anxious-ambivalents are characterized as emotionally labile, jealous, "preoccupied" with attachment issues and with partners, and as desiring more closeness than their partners seem willing to allow.

Using this measure, Hazan and Shaver (1987) found theoretically expectable attachment-style differences in how adults experience their most important love relationships. People with different attachment styles also reported characteristically different beliefs about romantic love, different levels of loneliness, and different patterns of childhood relationships with parents in ways congruent with attachment research on parents and young children (Hazan & Shaver, 1987). Hazan and

Shaver's (1987) simple measure (and later variants) has been shown to be fairly stable across time periods ranging from eight months to four years (e.g., Kirkpatrick & Hazan, 1994) and to be related to a wide variety of variables, ranging from personality traits, self-esteem, and coping styles, to relationship functioning and adaptation, to observable social behavior. (See Feeney & Noller, 1996, and Simpson & Rholes, in press, for a summary of research on adult romantic attachment.)

Due to attachment theory's relevance for the study of personality structure and organization (Bowlby, 1988; Sroufe & Waters, 1977), much of adult romantic attachment research has focused on normal personality functioning (Bartholomew & Horowitz, 1991; Carver, 1997; Duggan & Brennan, 1994; Mikulincer et al., 1990; Shaver & Brennan, 1992; Shaver et al., 1996). Bowlby (1973) conceived of individual differences in attachment as rooted in relatively stable, internal representations of the self, important others (i.e., attachment figures), and relationships. These internal representations, or working models, constructed gradually over the course of infancy and immaturity, are considered to be fairly accurate reflections of actual relationship experiences. Working models of attachment theoretically account for continuity in attachment styles over the lifespan.

Following Bowlby (1973), Bartholomew (1990) proposed a fourfold typology of adult attachment to replace Hazan and Shaver's threefold typology, and designed self-report and interview assessment techniques to classify individuals into one of the four categories. Conceptually, secures possess relatively positive models of self and others. Anxious-ambivalents, whom Bartholomew renamed "preoccupied," possess a positive model of others, along with a negative model of themselves. Notably, Bartholomew distinguishes two types of avoidant attachment. Fearful avoidants, akin to Hazan and Shaver's avoidant type, possess negative models of both self and others; hence they both desire and fear intimacy. Dismissing avoidants possess a positive model of the self but a negative model of others. According to Bartholomew (1990), Hazan and Shaver's avoidant type seemed too vulnerable and low in self-esteem compared to Main's (Main, Kaplan, & Cassidy, 1985) description of "dismissing" adults, which emerged from coded transcripts of the Adult Attachment Interview (AAI) (George, Kaplan, & Main, 1984/1985/1996), a technique for classifying adult parents of infants. Bartholomew and Horowitz (1991) demonstrated that the two kinds of avoidants differed as expected. Although both kinds of avoidants identified themselves

as "socially avoidant," fearful avoidants scored lower in self-esteem compared to dismissing avoidants. In addition, based on self- and peer reports, dismissing individuals appeared "cold," and were described as "competitive," "autocratic," and "introverted." Fearful avoidants, in contrast, appeared "submissive," and were described by themselves and peers as "sub-assertive," "introverted," and "exploitable."

Brennan, Shaver, and Tobey (1991) empirically documented the expected association between the three- and four-category attachment measures and found a common two-dimensional structure underlying the two measures.[1] Other researchers (see Griffin & Bartholomew, 1994; also see Brennan, Clark, & Shaver, 1998), using other measures, have documented the same two-dimensional structure. There are three important implications of the two measures' shared underlying structure. First, the two dimensions can be used to classify individuals into a three- or fourfold typology, so it does not matter much which quantitative measure is used. Second, the two-dimensional structure is further evidence that a simple "good/bad" dimension is not enough to differentiate attachment styles. This latter point is important in light of personality theorists' claims that "negative affectivity" underlies most self-report measures of distress (e.g., Watson & Clark, 1984). Third, a fourfold, two-dimensional typology in adulthood nicely matches what is emerging in the infant literature (Crittenden, 1988; Main & Solomon, 1990). Following this logic, Brennan et al. (1991) sought to test whether the fearful avoidant types, who conceptually possess the "worst of both worlds" in terms of mental models of self and others, might be the adult versions of the "disoriented" and "disorganized" infants identified by Crittenden (1988) and Main and Solomon (1990). Based on her research, Crittenden (1988) asserts that this fourth type arises when an infant's attachment figure is extremely preoccupied or otherwise unavailable, as in the case of maternal depression. As a consequence, the attachment figure is unresponsive to the infant's needs. As expected, fearful avoidants were more likely than

1. As predicted, Bartholomew's secure and preoccupied types were closely akin to Hazan and Shaver's secure and anxious-ambivalent types, respectively. Bartholomew's fearful avoidant type was highly associated with Hazan and Shaver's avoidant type. Bartholomew's dismissing avoidants classified themselves as either secure or avoidant on Hazan and Shaver's measure, indicating some defensiveness on the part of the dismissing avoidants. A factor-analysis of the seven scales revealed a two-dimensional, nearly orthogonal structure underlying both measures.

the other attachment types to report having grown up with problem-drinking parents (Brennan et al., 1991).

Several theorists have begun to integrate attachment theory with the literature on abnormal personality functioning and psychopathology in infancy and early childhood (Belsky & Nezworski, 1988; Crittenden, Parridge, & Clauseen, 1991). Sroufe and others have shown how attachment assessed in infancy can account for later childhood patterns of ego resilience, affect regulation, and problem solving in the face of stress (Elicker, Englund, & Sroufe, 1992). The same principles thought to underlie links between attachment and psychopathology in infancy are being applied to adults (Shaver & Clark, 1994; Shaver & Hazan, 1993). In adulthood, insecure adult romantic attachment styles have been associated with loneliness (Hazan & Shaver, 1987), anxiety, depression, and physical symptoms (Carnelley et al., 1994), negative affectivity (Simpson, 1990), neuroticism (Shaver & Brennan, 1992), low self-esteem (Brennan & Bosson, in press; Brennan & Morris, 1997; Collins & Read, 1990; Feeney & Noller, 1990), and maladaptive strategies for coping with negative affect (Brennan & Shaver, 1995; Fuendeling, in press; Mikulincer et al., 1993). These associations with insecure attachment are important in light of the fact that the adult romantic attachment measures do not refer to or include any phenomena relevant to individual adaptation.

Research on attachment and personality disorders. In the clinical literature, there is increasing support for conceptualizing personality disorders as disorders of attachment (e.g., Heard & Lake, 1986; Shaver & Clark, 1994; West & Sheldon, 1988; West & Sheldon-Keller, 1994). There is growing empirical evidence connecting Borderline personality disorder with patterns of insecure attachment reflected in representations of childhood relationships with parents (Patrick, Hobson, Castle, Howard, & Maughan, 1994; Sack et al., 1996; Stalker & Davies, 1995; West et al., 1994). Patrick et al. (1994) assessed internal representations of attachment (via the AAI; George et al., 1984/1985/1996) and found that individuals classified as Borderline evinced the mental organization characteristic of preoccupied attachment. Stalker and Davies (1995) found the same pattern in a small, clinical sample of sexually abused women. West et al. (1994) have discriminated Dependent and Schizoid personality disorders on the basis of an "enmeshed" (i.e., preoccupied) versus a "detached" (i.e., dismissing) interpersonal orientation. Similarly, researchers have observed associations between recollections of insecure

attachments with one or both parents and the Self-Defeating personality disorder (Williams & Schill, 1993). Among those diagnosed with Avoidant personality disorder, Sheldon and West (1990) reported that heightened desire for and fear of attachment relationships were more diagnostic of Avoidant personality disorder than were poor social skills. Sack et al. (1996) compared individuals with a diagnosis of Borderline with an unselected group of college students and found evidence of a number of indicators of attachment-related distress (e.g., fear of loss, separation protest, compulsive care-seeking, angry withdrawal) as well as a mixture of general ambivalent and avoidant tendencies in romantic/sexual attachment relationships. Their pattern of findings indicate that both preoccupation and fearful avoidance may be most closely associated with the Borderline disorder, although they did not include Bartholomew and Horowitz's (1991) measure in their study.

To date, however, no one has empirically examined links between adult romantic attachment styles and all 11 DSM personality disorders in a sample large enough to reveal structural connections between the two domains of interpersonal functioning. It seems likely that personality disorders and attachment styles overlap. Furthermore, both kinds of variables may moderate the impact of environmental stresses, such as major losses, separations, or maltreatment by significant attachment figures. Like insecure attachment styles, personality disorders may foster increasingly maladaptive or inflexible patterns of coping. For example, those with Borderline personality disorder, like preoccupied individuals, usually experience extremes of emotions, among other symptoms: After experiencing relationship loss due to death or abandonment, both kinds of individuals are likely to be distressed enough to contemplate suicide. Similarly, those with Avoidant personality disorder, like fearful avoidant individuals, appear to desire closeness with others but fear rejection (Bartholomew, 1990; Duggan & Brennan, 1994; Mattick & Newman, 1991). As a consequence, these individuals are likely to avoid the very social interaction that would mitigate their loneliness. Most troubling is that both kinds of individuals may counter feelings of depression by drinking alcohol (Brennan & Shaver, 1995), possibly compounding interpersonal difficulties with other problems (e.g., drinking and driving, illicit drug use, risky sexual behavior). Dismissing avoidants, on the other hand, who describe themselves as "unsociable" (Duggan & Brennan, 1994) and appear to derogate the importance of close relationships, are likely to be Schizoid. That is, both dismissing and Schizoid individuals are

likely to stress self-sufficiency and downplay attachment needs. As mentioned, West et al. (1994) reported an association between the Schizoid diagnosis and the attachment-related dimension of "compulsive self-reliance." This association is what one would expect if dismissing (but not fearful) avoidance is most closely associated with the schizoid pattern.

The Present Study

The present study had two objectives: First, we sought to explore connections between attachment styles and personality disorders and to determine whether the two kinds of variables share a common underlying structure. We predicted that attachment styles would be associated with all of the personality disorders, using correlational or analysis-of-variance procedures, and share most of their underlying structure. Second, we sought to explore the connections between attachment, personality disorders, and three other family-background factors: parental death, parental divorce, and current representations of early childhood relationships with parents. Previous experience of loss due to parental divorce has already been shown to predict risky health-related behavior, lower educational attainment, and earlier transition to parenthood (Aro & Palosaari, 1992), and should similarly affect personality disorders in adulthood. It is not clear whether parental death should be associated with any of the personality disorders, because parental death is a fundamentally different kind of loss than parental divorce. In any case, few of our young adult subjects were expected to have experienced the death of one or both parents. As noted, internal representations of early childhood relationships with parents have been shown to be related to Borderline personality disorder (e.g., Laporte & Guttman, 1996; Patrick et al., 1994). Thus, it seems reasonable to expect that reconstructions (i.e., memories) of early childhood relationships with parents should relate to other personality disorders as well.

To accomplish these objectives, we questioned a large sample of college-age individuals about their attachment styles, parental marital status, parental mortality status, perceptions of childhood treatment by parents, and 13 personality disorders: Schizoid, Schizotypal, Paranoid, Avoidant, Dependent, Obsessive-Compulsive, Passive-Aggressive, Self-Defeating, Histrionic, Narcissistic, Borderline, Antisocial, and Sadistic.

METHOD

Sample

The sample comprised 1407 introductory psychology students (587 males and 820 females) at the University of Texas at Austin who participated in exchange for course credit. Fully 967 (69.1%) classified themselves as Caucasian; 169 (12.1%) as Mexican-American or nonwhite Hispanic; 130 (9.3%) as Asian American; 69 (4.9%) as African American; 21 (1.5%) as white Hispanics; 21 (1.5%) as Indian Asian; 5 (.4%) as American Indian; and 3 (.2%) as Arabic; 22 (1.5%) failed to classify themselves or identified themselves as "other." Fully 918 respondents reported that their parents were still married; 420 reported that their parents were divorced or separated; and 69 reported that one or both of their parents were deceased. The intact group included four respondents whose parents divorced and then remarried each other, and one respondent whose parents never married but stayed together. Three individuals experienced parental divorce followed by the death of a parent, and therefore were omitted from the divorce/death analyses. Finally, three individuals were adopted and had no knowledge of their biological parents, and so were excluded from the death and divorce analyses. Thus, 417 individuals made up the "divorce" group, and 66 individuals made up the "death" group. Respondent age ranged from 18 to 50 ($m = 18$). For the divorce group, median age when parents divorced was 7; nearly 80% lived with mother post-divorce, and 13% lived with father. Over 80% reported that one or both parents remarried post-divorce. Median age at mother's first remarriage was 9; median age at father's remarriage was 10. Mothers and fathers remarried a median number of one time.

Materials

Participants were given a packet of questionnaires that began with queries about demographic variables including sex, age, ethnic group, parental marital status, and parental mortality status.

Attachment style. Subjects were asked to classify themselves into adult romantic attachment-style categories (using Bartholomew & Horowitz's [1991] methodology) and to rate the secure, fearful avoidant, preoccupied, and dismissing avoidant descriptions on a 7-point scale to indicate the degree to which each one characterized them. Everyone, regardless of self-classification, rated each of the attachment-style categories, allowing correlational tests of associations between the attachment-style ratings and other variables. Previous studies indicate that the three Hazan and Shaver (1987) attachment-style categories are approximately 70% stable over testing periods ranging from 2 weeks to 4 years; the three ratings' test–retest reliabilities average .60 over the same time periods

(Brennan & Shaver, 1995; Davis et al., 1994; Kirkpatrick & Davis, 1994; Kirkpatrick & Hazan, 1994). Given the association between the three- and four-category measures (Brennan et al., 1991), it is likely that Bartholomew's measure will demonstrate a similar level of stability (cf. Scharfe & Bartholomew, 1994). The proportions of attachment-style categories were similar in our sample to those reported in previous research (Bartholomew & Horowitz, 1991): 47.9% secure, 21.0% fearful, 15.2% preoccupied, and 15.9% dismissing.

Perceptions of childhood relationships with parents. The Mother-Father-Peer Scale, developed by Epstein (see Ricks, 1985), consists of dimensions measuring participants' perceived quality of treatment by mother, father, and peers while growing up. The following parental dimensions were included: (1) acceptance versus rejection (e.g., [mother/father] "gave me the feeling that she liked me as I was; she didn't feel she had to make me over into someone else"); (2) fostering independence versus overprotectiveness (e.g., [mother/father] "encouraged me to do things for myself"); and (3) defensive idealization (e.g., [mother/father] "had not a single fault that I can think of"). Participants were asked first about their mothers, then about their fathers, for a total of six scales. In the current sample, the three mother scales had coefficient alphas of .87 (acceptance/rejection), .82 (independence/overprotectiveness), and .88 (idealization). The three father scales had coefficient alphas of .89 (acceptance/rejection), .79 (independence/overprotectiveness), and .92 (idealization).

Personality disorders. Students also completed a measure of 13 personality disorders, the Personality Diagnostic Questionnaire (PDQ-R; Hyler & Rieder, 1987). The PDQ-R is a revised version of the original Personality Diagnostic Questionnaire (Hyler, Rieder, Williams, Spitzer, Hendler, & Lyons, 1988), which was amended along the lines of the third *Diagnostic and Statistical Manual* (DSM-III-R; APA, 1987). The PDQ-R was designed to assess the following 11 DSM-III-R personality disorders: Schizoid, Schizotypal, Paranoid, Avoidant, Dependent, Obsessive-Compulsive, Passive-Aggressive, Histrionic, Narcissistic, Borderline, Antisocial, plus two others—from the 1987 DSM-III-R Appendix—Self-Defeating and Sadistic. The PDQ-R consists of 140 true-false items and takes about 35 minutes to complete. It can be scored by a nonprofessional to determine an overall index of personality disturbance and to determine the existence of each of the specific personality disorders listed above. Approximately 30% of the statements included in the PDQ-R are reverse-scored.

The PDQ-R has high test–retest reliability (Hyler, Skodol, Kellman, Oldham, & Rosnick, 1990) and is valid for use with both clinical and nonclinical populations (Hyler et al., 1990; Hyler, Skodol, Oldham, Kellman, & Doidge,

1992).[2] Although the PDQ-R should not be considered a substitute for clinical interviews, its results agreed with judgments of each of two psychiatrists to the same extent as the two psychiatrists agreed with each other (Hyler et al., 1992). The PDQ-R has been shown to have high negative predictive power, but lower positive predictive power (Hyler et al., 1990; Hyler et al., 1992). That is, the PDQ-R has a relatively low rate of false-negative diagnoses (results indicating the absence of a personality disorder when one actually exists) but a relatively high rate of false-positive diagnoses (results indicating the presence of a personality disorder when none exists). In the present study of students who were presumed to be mostly in the normal range on clinical measures, this bias was considered acceptable, because we were looking for structural similarities between personality disorder dimensions and attachment-style dimensions. We were not seeking to make categorical clinical diagnoses. Each personality-disorder scale will be described briefly below.

The Schizoid scale measures a person's tendency to retreat from others, thereby isolating oneself from relationships with family and friends (8 items). One item on this scale is "Others see me as cold and unemotional." The Schizotypal scale describes individuals who have experienced a break from reality (12 items). These individuals may believe that they are receiving subliminal messages or that they can communicate through ESP. An example is "I have an unusual ability to know that some things will happen before they actually do." The Paranoid scale describes a person who is suspicious of others and fears persecution by others (7 items). He or she is afraid of being tricked or betrayed by others. A sample item is "I often wonder whether the people I know can really be trusted." The Avoidant scale describes a person who tends to lack self-assurance and to fear ridicule by or disapproval from others (7 items). Therefore the Avoidant person prefers to minimize contact with others. An example is "I make friends with people only when I am sure they like me."

The Dependent personality disorder scale refers to people who have an excessive need to rely on others (9 items). For instance, they may agree with all authority figures and be overly reliant on relationship partners. One item is "I want people to like me so much that I volunteer to do things that I'd rather not do." The Obsessive-Compulsive scale refers to an excessive focus on rules (9 items). This disorder often manifests itself in excessive concern for following norms in social situations and for following a proper regimen for personal hygiene, work assignments, and so on. The Obsessive-Compulsive individual sees only one proper way to do things and becomes easily upset when rules are broken. A sample item is "I waste time trying to make things too perfect." The

2. Internal consistency is not the best indicator of the reliability of these scales because the scales are essentially heterogeneous lists of items. Test–retest reliability is a better indicator.

Passive-Aggressive scale describes a person who uses passive means to accomplish aggressive behaviors (9 items). For instance, rather than directly refusing to perform a task, a person with Passive Aggressive disorder might intentionally make errors (to communicate that he or she did not really want to perform the task). A sample item is "When I resent doing something I tend to work slowly or screw things up."

The Self-Defeating scale assesses the tendency to put oneself down and to fear success and happiness (11 items). For example, "I find myself more interested in people who treat me badly than in people who are nice to me." The Histrionic scale assesses a tendency to present oneself as friendly, accommodating, and unselfish, when in reality one is vain and self-serving (10 items). These people like to be the center of attention and often exaggerate actions and emotions to attain attention from others. An example item is "I often act very emotionally when little things go wrong." The Narcissistic scale assesses the tendency toward being pompous, egocentric, and self-absorbed (11 items). This sense of personal greatness may be a defensive reaction to internal feelings of worthlessness. For example, "I often find myself thinking about how great a person I am, or will be."

The Borderline personality disorder scale assesses the extent to which people feel out of control of their emotions and behaviors (12 items). They may experience mood swings and behave on impulse (drinking, shoplifting, or other acts that often get them into trouble). An example is "My feelings towards another person can often change drastically." The Antisocial personality disorder scale characterizes people who are very focused on personal gain without regard for the effects of their behavior on others (12 items). For example, "I don't care if other people get hurt so long as I get what I want." The Sadistic scale describes a person who is physically and/or emotionally harmful toward other people or animals (8 items). Such a person derives a sense of self-worth and power from causing others harm. For example, "I have enjoyed humiliating other people."

RESULTS

Preliminary Analyses

Prevalence rates. Personality disorders were scored categorically (presence vs. absence of a disorder) as well as on a continuum (i.e., the degree to which one possesses attributes of a particular disorder).[3] The

3. For the most part, the distributions of responses on the personality-disorder scales were not at all skewed. The skewness of the Antisocial and Sadistic scales (1.32 and 1.57, respectively) were by far the highest (average skew without these two scales was .67),

prevalence of various personality-disorder diagnoses ranged from 5.2% (Schizoid) to 42.5% (Paranoid). Most of the subjects had at least one personality disorder (N = 1056 of 1407, or 75.0%), consistent with the PDQ-R's positive bias (cf. Moldin, Rice, Erlenmeyer-Kimling, & Squires-Wheeler, 1994). The median number of disorders was 2, with an average of 2.45. Frequencies and percentages of each disorder in the current sample are displayed in the first column of Table 1.

Using the same measure and scoring procedures, two other sets of researchers have reported similar prevalence rates in late-adolescent samples (Johnson & Bornstein, 1992; Johnson, Bornstein, & Sherman, 1996; Maffei et al., 1995). In their random sample of first-year medical students at a university in Milan, Maffei et al. reported an overall prevalence rate of 88.7% for all 13 disorders. Maffei's prevalence rates for individual disorders were very similar to ours, except that they reported a higher rate for Paranoid (66.0%) and Schizoid (10.2%), and a lower rate for Borderline (11.7%), Schizotypal (12.1%), Passive-Aggressive (6.6%), and Sadistic (2.7%) (Maffei et al., 1995, p. 335). In two samples of American undergraduates, Johnson and his colleagues (Johnson & Bornstein, 1992, p. 453; Johnson et al., 1996, p. 81) used the PDQ-R's authors' scoring criteria (Hyler et al., 1988, 1989) and reported personality-disorder prevalence rates very similar to those reported here. Frequencies and percentages of each disorder in the Johnson et al. (1996) sample (which is larger than the Johson & Bornstein sample) are shown in the second column of Table 1.

Such high prevalence rates prompted Johnson and his colleagues to devise more stringent scoring algorithms for the PDQ-R, resulting in an overall prevalence rate of 11.3% for 12 of the 13 disorders (Johnson et al., 1996). Prevalence rates obtained using the more stringent scoring criteria in both the current sample and the Johnson et al. (1996) sample are listed in the third and fourth columns of Table 1. Note that in the current sample the overall prevalence rate dropped from 75.0% to 14.3% when Johnson et al.'s more stringent scoring methods were used. Nonetheless, we chose not to use Johnson et al.'s (1996) scoring methods, because these methods appear to rely too heavily on reports of distress.

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but not high enough to violate the relatively robust assumptions of analysis-of-variance procedures. Hence, although we analyzed the data primarily with the continuous ratings of personality disorders (following the advice of Hyler, Lyons, Rieder, Young, Williams, & Spitzer, 1990), we have provided information about personality-disorder categories with respect to basic frequencies and associations with gender and attachment style.

Table 1
Frequency of Disorders (and % of Sample) Using Standard and More Stringent Scoring Criteria in the Current Sample and in Johnson et al.'s (1996) Study

	Frequencies (Percentages) of Each Personality Disorder			
	Standard Scoring		More Stringent Scoring	
	Current Sample	Johnson et al.	Current Sample	Johnson et al.
Schizoid	73 (5.2%)	17 (4%)	0 (0%)	0 (0%)
Schizotypal	258 (18.4%)	66 (15%)	52 (3.7%)	10 (2.3%)
Paranoid	596 (42.5%)	194 (44%)	38 (2.7%)	12 (2.7%)
Avoidant	245 (17.4%)	75 (17%)	83 (5.9%)	16 (3.6%)
Dependent	182 (12.9%)	53 (12%)	56 (4.0%)	4 (.9%)
Obsessive-Compulsive	384 (27.3%)	141 (32%)	52 (3.7%)	9 (2.0%)
Passive-Aggressive	254 (18.1%)	84 (19%)	38 (2.7%)	4 (.9%)
Self-Defeating	102 (7.3%)	35 (8%)	51 (3.6%)	14 (3.2%)
Histrionic	431 (30.7%)	150 (34%)	28 (2.0%)	9 (2.0%)
Narcissistic	236 (16.8%)	115 (26%)	13 (.9%)	9 (2.0%)
Borderline	426 (30.5%)	150 (34%)	142 (10.2%)	39 (8.8%)
Antisocial	103 (7.3%)	62 (14%)	0 (0%)	2 (.5%)
Sadistic[a]	113 (8.1%)	—	—	—
At least one diagnosis[b]	1056 (75.0%)	—	201 (14.3%)	50 (11.3%)

[a] Johnson et al. (1996) did not provide any information with regard to the Sadistic scale, so we could not provide alternative scoring for this scale. [b] Also, Johnson et al. did not provide the overall prevalence rate obtained when using standard scoring methods.

According to Johnson et al., individuals cannot be classified as having a disorder unless they report at least some distress, a criterion that may be overly exclusionary. A person with a Schizoid disorder, for example, may not acknowledge any distress. Note that, using the distress criterion, no individuals were diagnosed as Schizoid in either sample. In any case, we were interested in the associations between attachment styles and personality disorders, and these associations generally did not change when the more stringent classification criteria were applied.[4]

4. The association of the Narcissistic personality disorder (present vs. absent) was not associated with attachment style, perhaps because the percentage of individuals with this

Gender differences. The percentage of males with at least one personality disorder was 76.8% and the percentage of females with at least one disorder was 73.8%. Examination of the individual personality disorders revealed six statistically reliable gender differences. Males were more likely to qualify for a diagnosis of Schizotypal (χ^2 [df = 1, N = 1402] = 4.83, $p < .05$), Passive-Aggressive (χ^2 [df = 1, N = 1405] = 8.77, $p < .01$), Narcissistic (χ^2 [df = 1, N = 1402] = 17.26, $p < .001$), Antisocial (χ^2 [df = 1, N = 1403] = 33.72, $p < .001$), or Sadistic (χ^2 [df = 1, N = 1400] = 26.31, $p < .001$). Females were more likely to qualify for a diagnosis of Histrionic (χ^2 [df = 1, N = 1403] = 5.35, $p < .05$).

Looked at another way, consistent gender differences emerged on several personality-disorder scales. Males scored higher on the following scales: Schizoid (M_{males} = 1.47, $M_{females}$ = 1.19, t [1254] = 4.48, $p < .001$), Schizotypal (M_{males} = 2.95, $M_{females}$ = 2.68, t [1202] = 2.70, $p < .01$), Passive-Aggressive (M_{males} = 2.97, $M_{females}$ = 2.66, t [1207] = 3.19, $p < .01$), Narcissistic (M_{males} = 3.18, $M_{females}$ = 2.90, t [1170] = 3.15, $p < .01$), Antisocial (M_{males} = 1.79, $M_{females}$ = .98, t [1027] = 11.03, $p < .001$), and Sadistic (M_{males} = 1.85, $M_{females}$ = 1.30, t [1060] = 7.82, $p < .001$). Females scored higher on the Dependent (M_{males} = 2.06, $M_{females}$ = 2.32, t [1270] = 2.65, $p < .01$) and Histrionic (M_{males} = 2.36, $M_{females}$ = 2.72, t [1288] = 3.85, $p < .001$) scales. Interestingly, there were no gender differences on the Borderline personality disorder scale, although this disorder is often thought to be more characteristic of women than men (e.g., Ekselius et al., 1996; but see also Golomb, Fava, Abraham, & Rosenbaum, 1995).

Intercorrelations of the scales. Intercorrelations of the personality-disorder scales are shown in Table 2. The moderately high correlations indicate considerable comorbidity: Individuals scoring high on one personality-disorder scale tend to score high on others as well. As the sections below explain, however, the correlations are not uniform; and their varying sizes reflect an underlying structure.

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disorder (.9%) was quite low. No one was classified as having a Schizoid or an Antisocial disorder, so these scales could not be associated with attachment style. Lastly, Johnson et al. (1996) did not report scoring criteria for the Sadistic scale, so we could not use their alternative scoring methods with this scale.

Table 2
Intercorrelations of 13 Personality Disorders Scales

Scale Name	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Schizoid	—												
2. Schizotypal	.25	—											
3. Paranoid	.12	.54	—										
4. Avoidant	.22	.51	.44	—									
5. Dependent	–.13	.29	.25	.42	—								
6. Obsessive	.08	.40	.36	.37	.27	—							
7. Passive-Agg.	.06	.34	.32	.31	.34	.37	—						
8. Self-Def.	.16	.53	.42	.42	.37	.38	.35	—					
9. Histrionic	–.13	.32	.28	.26	.43	.34	.36	.38	—				
10. Narcissistic	.05	.39	.38	.34	.32	.37	.43	.37	.45	—			
11. Borderline	.07	.46	.43	.36	.37	.35	.40	.48	.44	.44	—		
12. Antisocial	.12	.24	.16	.12	.07	.07	.30	.23	.16	.28	.35	—	
13. Sadistic	.09	.26	.24	.13	.14	.22	.29	.24	.20	.31	.28	.36	—

Note. Because of the large *N* (1394–1406, depending on missing values), all correlations larger than .09 are significant beyond the .001 level.

Connections Between Attachment Styles and Personality Disorders

In this section, we will test our first hypothesis, that there would be associations between attachment styles and personality disorders, and that the two kinds of variables would share most of their underlying structure.

Tests using personality-disorder categories. The association of categorical attachment style with the categorical personality-disorder variable (present vs. absent) reached significance (χ^2 [df = 3, N = 1384] = 148.85, $p < .001$). Secures were nearly twice as likely not to have a personality disorder as to have one (75.0% vs. 38.8%). Fearfuls were about four times as likely to have at least one personality disorder as not (26.0% vs. 6.3%). Preoccupieds were about three times as likely to have a disorder as not (18.3% vs. 5.7%). Dismissing individuals were nearly equally distributed across the two categories of "at least one disorder" and "no disorders" (16.9% vs. 12.9%). Said another way, for individuals classified as secure, fearful, preoccupied, and dismissing, the percentage with at least one disorder was 60.6%, 92.4%, 90.5%, and 79.5%, respectively.

For each personality disorder, we cross-tabulated the presence versus absence of the disorder with attachment-style category, and performed a chi-square test on each cross-tabulation. The frequency of participants in each attachment-style category with a particular disorder is shown in Table 3, along with the percentages of the four attachment styles within each disorder category. In every case, the distribution of attachment styles deviated from that of the total sample, as evidenced by the significant chi-square tests. The percentage of secures with each personality disorder was lower than the overall percentage of secures in the total sample. The relative proportion of each insecure group was usually greater than its frequency in the total sample. For example, both kinds of avoidants were much more likely to earn a diagnosis of Schizoid; fearfuls were particularly likely to earn a diagnosis of Avoidant personality disorder; preoccupied individuals were particularly likely to earn a diagnosis of Dependent personality disorder.

Tests using personality-disorder dimensions Personality-disorder ratings were then analyzed as a function of attachment-style category and

Table 3
Frequency of Disorders Within Each Attachment Group (and % of Each Attachment Group Within Each Disorder Category)

	Frequencies of Each Personality Disorder									
	Secure		Fearful		Preoccupied		Dismissing		χ^2	
Schizoid	6	(8.5%)	29	(40.8%)	3	(4.2%)	33	(46.5%)	88.49	
Schizotypal	41	(16.2%)	99	(39.1%)	69	(27.3%)	44	(17.4%)	143.90	
Paranoid	174	(29.7%)	199	(34.0%)	107	(18.3%)	106	(18.1%)	162.02	
Avoidant	49	(20.3%)	92	(38.2%)	61	(25.3%)	39	(16.2%)	106.90	
Dependent	49	(27.4%)	46	(25.7%)	71	(39.7%)	13	(7.3%)	110.97	
Obsessive-Compulsive	118	(31.7%)	116	(31.2%)	79	(21.2%)	59	(15.9%)	64.63	
Passive-Aggressive	69	(27.8%)	76	(30.6%)	62	(25.0%)	41	(16.5%)	58.07	
Self-Defeating	13	(12.9%)	41	(40.6%)	36	(35.6%)	11	(10.9%)	79.72	
Histrionic	172	(40.7%)	102	(24.1%)	101	(23.9%)	48	(11.3%)	47.38	
Narcissistic	70	(30.4%)	79	(34.3%)	45	(19.6%)	36	(15.7%)	44.21	
Borderline	125	(29.8%)	135	(32.2%)	103	(24.6%)	56	(13.4%)	113.30	
Antisocial	24	(23.5%)	33	(32.4%)	19	(18.6%)	26	(25.5%)	27.85	
Sadistic	26	(23.2%)	33	(29.5%)	27	(24.1%)	26	(23.2%)	30.20	
Overall Proportions[a]	663	(47.9%)	291	(21.0%)	210	(15.2%)	220	(15.9%)	1407	(100%)

Note. $N = 1407$ for most tests. (In some cases, missing values on either attachment or personality-disorder measures resulted in minor discrepancies between frequency of the total sample with a particular disorder and sum of the frequencies of each of the four attachment groups with the disorder.) All tests were significant at $p < .001$.

[a]Frequencies (and %s) of the four attachment-style groups in the total sample.

gender in a 2 × 4 multivariate analysis of variance (MANOVA). The resulting interaction term was not significant, so the data were analyzed further without respect to gender. A MANOVA conducted on the personality-disorder ratings as a function of attachment-style category was significant, Hotelling's F (df = 39, 4022) = 20.57, $p < .001$. The attachment-group means for each of the personality-disorder scales are displayed in Table 4 along with the univariate Fs and effect sizes (η^2s).

With two exceptions, securely attached participants scored lower on every personality-disorder scale compared to insecurely attached participants. Secures scored higher than dismissing individuals on the Dependent scale. Secures did not differ from dismissing individuals on the Histrionic scale (both groups scored low). Fearful, dismissing, and preoccupied participants generally scored similarly, except that preoccupieds outscored fearfuls on the Histrionic and Dependent scales, but scored lower than fearfuls on the Paranoid and Schizoid scales. Dismissings, for the most part, scored intermediately between secures, on the one hand, and fearful and preoccupied individuals, on the other. There were a few exceptions to this rule: The dismissing group scored lowest on the Dependent scale. Dismissing individuals scored lower than fearful and preoccupied individuals on the Histrionic scale. Dismissings scored higher than fearfuls on the Schizoid scale. Dismissings scored similarly to preoccupieds (but lower than fearfuls) on the Paranoid scale. Dismissings scored similarly to fearful and preoccupied individuals on the Antisocial and Sadistic scales.

Discriminating among attachment-style categories using personality-disorder scales. To explore further the association between personality-disorder scales and attachment styles, a discriminant-function analysis was conducted using the 13 personality-disorder scales to predict subjects' self-reported attachment-style category. Table 5 displays the correlations of the personality-disorder scales with the discriminant functions. Table 6 displays the canonical discriminant functions evaluated at each attachment-style group's mean. Function 1 distinguished insecures (especially fearfuls) from secures (χ^2 [df = 39] = 701.44, $p < .001$). Function 2 distinguished preoccupied and dismissing groups (χ^2 [df = 24] = 250.59, $p < .001$). Function 3 was only marginally significant, weakly discriminating dismissing and preoccupied from fearful individuals (χ^2 [df = 11] = 19.55, $p < .10$). Functions 1 and 2 accounted for 66.17% and

Table 4
Mean Personality-Disorder Ratings as a Function of Four Attachment-Style Categories

Personality-Disorders Ratings	Attachment-Style Category				Univariate F	η^2
	Secure	Fearful	Preoccupied	Dismissing		
Schizoid	.98[a]	1.69[c]	1.04[b]	1.98[c]	64.12	.12
Schizotypal	2.05[a]	3.81[c]	3.49[c]	2.98[b]	89.23	.16
Paranoid	2.50[a]	4.33[c]	3.67[b]	3.45[b]	95.19	.17
Avoidant	1.34[a]	2.76[c]	2.66[c]	1.98[b]	78.42	.15
Dependent	1.89[b]	2.56[c]	3.56[d]	1.45[a]	70.41	.13
Obsessive-Compulsive	3.02[a]	4.03[c]	3.99[c]	3.55[b]	34.33	.07
Passive-Aggressive	1.35[a]	2.58[c]	2.76[c]	1.83[b]	78.17	.08
Self-Defeating	2.18[a]	3.14[c]	3.38[c]	2.54[b]	65.90	.15
Histrionic	2.35[a]	2.81[b]	3.42[c]	2.13[a]	27.56	.06
Narcissistic	2.61[a]	3.61[c]	3.53[c]	2.91[b]	38.14	.08
Borderline	2.93[a]	4.31[c]	4.32[c]	3.40[b]	54.12	.11
Antisocial	1.02[a]	1.63[b]	1.43[b]	1.61[b]	21.79	.05
Sadistic	1.32[a]	1.71[b]	1.72[b]	1.73[b]	11.20	.02

*Note. df*s ranged from 3 and 1372 to 1380. All tests were significant at $p < .001$. Within each row, means whose superscripts differ are significantly different at $p < .05$.

Table 5
Rotated Correlations Between 13 Personality Disorders Scales and Three Discriminant Functions Predicting Attachment-Style Category

Personality Disorder Rating	Function 1	Function 2	Function 3
Paranoid	.72*	.03	–.39
Schizotypal	.69*	.15	–.08
Avoidant	.63*	.23	–.05
Self-Defeating	.61*	.38	.20
Borderline	.51*	.29	–.04
Narcissistic	.43*	.22	–.18
Obsessive-Compulsive	.43*	.14	.14
Dependent	.31	.77*	.16
Schizoid	.44	–.60*	.31
Histrionic	.22	.48*	.15
Passive-Aggressive	.43	.24	.44*
Sadistic	.24	–.01	.40*
Antisocial	.35	–.08	.36*

Note. $N = 1358$. Function 1, χ^2 (39) = 701.44, $p < .001$; Function 2, χ^2 (24) = 250.59, $p < .001$; Function 3, χ^2 (11) = 19.55, $p < .10$. Asterisks denote each personality disorders scale's highest correlation with one of the three discriminant functions.

Table 6
Discriminant Functions Evaluated at Attachment-Style Group Centroids (Means)

Attachment Style	Function 1	Function 2	Function 3
Secure	–.63	.02	–.03
Fearful	.86	–.06	–.16
Preoccupied	.45	.80	.15
Dismissing	.33	–.74	.17

31.27% of the variance, respectively; Function 3 accounted for the remainder (2.56%).

The fearful group appeared the most troubled, scoring highest on the discriminant function that correlated with personality disorders involving

some sort of distortion of reality along with negativity about others (Paranoid, Schizotypal, Avoidant, Self-Defeating, Borderline, Narcissistic, and Obsessive-Compulsive). The preoccupied and dismissing groups appeared to suffer from diametrically opposed personality problems as evidenced by the pattern of scores on the second function, which was about Dependent and Histrionic versus Schizoid personality characteristics. This pattern fits with Bartholomew and Horowitz's model: Preoccupied persons appear overly dependent, whereas Dismissing persons appear "counter-dependent." The third personality-disorder function, which appeared akin to psychopathy (Passive-Aggressive, Sadistic, and Antisocial), accounted for negligible variance among attachment categories.

Underlying structure of the attachment-style ratings. To determine whether the four attachment-style ratings conformed to the two-dimensional structure postulated by Bartholomew (1990), a principal components analysis was conducted. Two principal components emerged and were rotated, using an oblique procedure. (The same structure appeared regardless of rotation method.) Factor 1 was defined by the difference between secure and fearful attachment (with loadings of –.88 and .82, respectively). Factor 2 was defined by the difference between dismissing and preoccupied attachment (with loadings of .82 and –.72, respectively). These results are similar to those obtained by Brennan et al. (1991). The first attachment factor can be conceptualized as Insecurity; the other attachment factor can be conceptualized as Defensive Emotional Style. The two factors accounted for 72.8% of the variance and were correlated –.03. (That is, they were essentially orthogonal.)

Underlying structure of the personality-disorder dimensions. To determine the structure of the personality-disorder scales, a principal components analysis was conducted on all 13 personality-disorder scales.[5] Three principal components emerged and were rotated using an oblique procedure (again, the same structure appeared regardless of rotation procedure). The results mirrored those of the discriminant function

5. Principal components analyses were also conducted separately for males and females. The resulting three-factor structure in both subsamples was virtually identical to the one obtained with the total sample. Correlations of each of the three total-sample factors with the three corresponding factors obtained within each subsample all exceeded .99.

analysis. Avoidant, Schizotypal, Paranoid, Self-Defeating, Obsessive-Compulsive, and Borderline personality-disorder scales loaded highly on the first factor (the respective loadings were .84, .78, .69, .66, .60, and .44). Schizoid, Histrionic, and Dependent scales loaded highly on the second factor (the respective loadings were .79, –.59, –.55). The Antisocial, Sadistic, Passive-Aggressive, and Narcissistic scales loaded highly on the third factor (the respective loadings were .86, .75, .41, and .37). (The Borderline, Passive-Aggressive, and Narcissistic scales loaded nearly equally on the first and third factors. Schizoid and Dependent scales also loaded on Factor 1.)

Given the pattern of factor-loadings, it is not surprising that the three factors were somewhat intercorrelated: Factors 1 and 2 correlated –.21; Factors 1 and 3 correlated .37; Factors 2 and 3 correlated –.12.[6] Together the three factors accounted for 56.3% of the variance. Notice that the three functions appear strikingly similar to those that emerged from the discriminant function analysis predicting attachment-category member-

6. Due to the moderate intercorrelations among the disorders scales, we decided to conduct a second, item-level principal components analysis on the 135 individual personality-disorder items. Three principal components emerged and were rotated using the SPSS oblimin procedure (again, the same structure appeared regardless of rotation procedure). The first factor, Neuroticism, was composed of items indicative of intense negative affect, especially anxiety, oversensitivity to criticism or rejection, and other self-defeating behaviors. The second factor, Psychopathy, derived mainly (95%) from the Antisocial, Sadistic, and Borderline scales, and included items indicative of aggressive, self-destructive, or impulsive behaviors. The third factor, Extraversion, was composed of items indicative of sociability, or preference for and ease of being around others. These three factors are similar to Eysenck's (1970) Neuroticism, Psychoticism, and Extraversion scales.

When four factors were selected, Factor 2 split into self-destructive (mainly Borderline items) and other-destructive items (mainly Sadistic and Antisocial items). When five factors were selected, the fifth factor contained a handful of items indicative of endorsement of unusual ideas (e.g., belief in ESP, premonitions, receiving "special messages" from others). Such a five-factor solution, although insufficiently strong in this nonclinical sample, is reminiscent of other researchers' findings revealing the presence of the "five-factor model" in assessments of personality disorders (e.g., Wiggins & Pincus, 1994). The results of our item-level analysis (whether 3, 4, or 5 factors were selected) contrasts with those of other researchers, who found anywhere from 12 to 23 factors using the PDQ-R (Hyler et al., 1990; Livesley et al., 1992) or clinical interviews (Ekselius, Lindstrom, von Knorring, Bodlund, & Kullgren, 1994; Torgersen, Skre, Onstad, Edvardsen, & Kringlen, 1993).

ship. The first factor seemed to be a general pathology factor that taps low sociability, distrust, low self-esteem, and disordered thinking patterns; we therefore named it Generalized Pathology. The second factor appeared to be about excessive self-reliance (vs. dependency); we named it Counter-Dependence. The third factor appeared to be about interpersonal aggression and callousness; we named it Psychopathy.

Associations between the attachment and personality-disorder factors. A higher-order principal components analysis was conducted on the two attachment factors plus the three personality-disorder factors. Two principal components emerged and were rotated using an oblique procedure. The first higher-order factor was defined by the Insecurity attachment factor (with a loading of .83), the Generalized Pathology personality-disorder factor (with a loading of .82), and the Psychopathy personality-disorder factor (with a loading of .66). The second factor comprised the Counter-Dependence personality-disorder factor (with a loading of .83) and the Defensive Emotional Style attachment factor (with a loading of .82). Together, the two factors accounted for 64.5% of the variance. The two factors correlated –.11; that is, they were essentially orthogonal.

From these results we can say that the attachment styles and 10 of the 13 personality disorders (all but the scales making up the Psychopathy factor) are located in a two-dimensional conceptual space corresponding to Bartholomew's (1990) attachment-style typology. As mentioned, the first attachment-related factor can be conceptualized as Insecurity; the other attachment-related factor can be conceptualized as Defensive Emotional Style. The first personality-disorder factor, General Pathology, is made up of 6 of the 13 personality-disorder scales and is similar to the first attachment factor. The second personality-disorder factor, Counter-Dependence, is made up of 3 additional personality-disorder scales (Schizoid, Histrionic, and Dependent) and is similar to the second attachment factor. Four remaining personality-disorder scales (Antisocial, Sadistic, Passive-Aggressive, and Narcissistic) formed a third factor, Psychopathy, which was modestly correlated with the first attachment factor (r = .28) but not with the second (r = .002).

Given that the two kinds of variables share much of their variance, it seems reasonable to look for common origins. In the next section, we examine the association of attachment and personality disorders with

three family-background variables: parental death, parental divorce, and perceptions of parental caregiving.

Association of Personality Disorders and Attachment Styles with Family Variables

In this section, we test our second hypothesis. We predicted that parental divorce and negative representations of early relationships with parents would be related to both attachment insecurity and personality disorders. The association of parental death with either attachment insecurity or personality disorders was less clear, and our results on that issue will be considered exploratory.

Parental divorce. The associations of parental marital status (divorced vs. nondivorced) with both attachment style and personality disorders were explored. A chi-square test was computed on the cross-tabulation of attachment-style category and (dichotomous) parental marital status: χ^2 (df = 3, N = 1312) = 8.69, $p < .05$. A series of two-tailed tests of independent proportions revealed that individuals with divorced parents were more likely to be fearful (z = 2.87, $p < .01$) and less likely to be secure (z = 1.91, $p < .05$) than individuals from intact families. Considering that secure and fearful scales load on a single Insecurity factor, the latter results suggest that, on average, subjects who had experienced the divorce of their parents were less secure (in the attachment sense).

Personality-disorder ratings were analyzed as a function of parental marital status and gender in a 2 × 2 MANOVA. The overall interaction term was significant (Hotelling's F [df = 13, 1294] = 1.98, $p < .05$). Compared to females from intact families, females from divorced families scored higher on the following three personality disorder scales: Schizotypal (M_{intact} = 2.55, $M_{divorced}$ = 2.98, t = 3.11, $p < .01$), Self-Defeating (M_{intact} = 1.78, $M_{divorced}$ = 2.19, t = 3.25, $p < .01$), and Borderline (M_{intact} = 3.32, $M_{divorced}$ = 3.90, t = 3.96, $p < .001$). The main effect for parental marital status was also significant, Hotelling's F (df = 13, 1296) = 2.12, $p < .05$. Compared to college-aged children whose parents were still married, the children with divorced parents scored significantly higher on two personality-disorder scales: Paranoid (M_{intact} = 3.10, $M_{divorced}$ = 3.44, t = 3.26, $p < .01$) and Narcissistic (M_{intact} = 2.95, $M_{divorced}$ = 3.14, t = 2.16, $p < .05$). (Significant main effects for the Borderline and Schizotypal scales emerged but were qualified by the interaction of

gender and parental marital status.) These results should be treated with caution, as parental marital status accounted for less than 1% of the variance in any particular personality-disorder scale.

The five higher-order factors were similarly examined as a function of parental divorce. Two of the five factors were associated with parental divorce: Attachment Insecurity ($M_{intact} = -.06$, $M_{divorced} = .12$, $t = 3.00$, $p < .01$) and Generalized Pathology ($M_{intact} = -.05$, $M_{divorced} = .10$, $t = 2.51$, $p < .05$) were higher for those from divorced families.

Parental death. The associations of parental mortality status (one or both parents died vs. neither parent died) with both attachment style and personality disorders were explored. A chi-square test was computed on the cross-tabulation of attachment-style category and (dichotomous) parental mortality status: χ^2 ($df = 3$, $N = 1381$) = 11.36, $p < .01$. A two-tailed test of independent proportions revealed that individuals with deceased parents were more likely to be dismissing than were individuals whose parents were both still living ($z = 2.92$, $p < .01$).

A MANOVA conducted on the set of personality disorders as a function of parental mortality status and participants' gender was not significant. Nor was the MANOVA significant when gender was ignored, Hotelling's F ($df = 13, 1363$) = 1.25, $p = .23$. The absence of significant effects might have been due partly to the fact that only a small fraction of the sample had experienced the death of one or both parents. Still, the effect on dismissing attachment was discernible.

These findings were mirrored by those obtained when examining the five higher-order factors as a function of parental mortality. Scores on the second attachment factor, Defensive Emotional Style, were elevated for those who had experienced the death of one or both parents ($M_{living} = -.01$, $M_{deceased} = .34$, $t = 2.51$, $p < .05$). No other higher-order factors were associated with parent mortality status.

Perceptions of childhood relationships with parents. Mean scores on the scales measuring perceptions of childhood relationships with parents were analyzed as a function of gender and attachment-style grouping in a 2 × 4 MANOVA. The overall interaction term was not significant, so the data were analyzed further without respect to gender. A MANOVA conducted on the mother-father scales as a function of attachment-style category was significant, Hotelling's F ($df = 18, 4046$) = 8.50, $p < .001$.

(The attachment-group means for each of the six mother-father scales are listed in Table 7, along with the univariate *F*s and effect sizes [η^2s].)

As shown in Table 7, all six parent scales differed significantly as a function of attachment style. Relative to insecure groups, secures recalled more accepting relationships with mothers and fathers. Insecure groups appeared to perceive their relationships with fathers as equally negative, but fearful individuals described their mothers as even more rejecting than did preoccupied and dismissing individuals (who did not differ from each other). Both secure and dismissing individuals recalled parents as having fostered their independence, relative to fearful and preoccupied individuals (who did not differ from each other). The fearful group reported less mother idealization than any other group. Preoccupieds reported less mother idealization than did secures, and dismissings scored between the two. Both secures and dismissings reported more idealistic childhood relationships with fathers than did fearfuls and preoccupieds (who did not differ from each other). Interestingly, despite dismissing individuals' perceptions of parental rejection, they did not differ from secures in degree of idealization of either parent. These findings partly replicate those found by Carnelley and Janoff-Bulman (1992), but provide added information about the dismissings. This pattern also fits with the idea in the AAI scoring system (Goldwyn & Main, 1994) that parental idealization (in combination with evidence that one or both parents were rejecting) is a sign of dismissing attachment.[7]

We then correlated the six parental-perception scales with the 13 personality-disorder scales. (These correlations are shown in Table 8.) In general, all three positive parental features were correlated significantly negatively, but weakly, with personality disorders.

7. At first glance, it may appear odd that both secures and dismissings report similar levels of parental idealization. It is problematic to use Epstein's idealization scale to single-handedly attempt to discriminate persons with positive parental caregiving histories (and hence accurately positive descriptions of parents) from persons with negative parental caregiving histories (and hence inaccurately positive, or idealistic, descriptions of parents). Logically, scores on the idealization scale must be evaluated in conjunction with scores on the acceptance scale. That is, secures' idealization, in the context of their reports of parental acceptance, may accurately reflect a history of positive parenting. Dismissings' idealization, in the context of their reports of parental rejection, is not at all consistent with a history of positive parenting. Thus, only the dismissing group's idealization is likely to represent "true" idealization (cf. Shaver, Belsky, & Brennan, 1997).

Table 7
Mean Ratings of Perceptions of Childhood Relationships with Parents as a Function of Four Attachment-Style Categories

	Attachment-Style Category					
	Secure	Fearful	Preoccupied	Dismissing	Univariate *F*	η^2
Relationship with Mother						
Acceptance	4.49[c]	4.11[a]	4.29[b]	4.32[b]	23.44	.05
Fostered Independence	3.73[b]	3.47[a]	3.47[a]	3.62[b]	14.65	.03
Idealization of Mother	3.48[c]	3.00[a]	3.25[b]	3.37[bc]	16.20	.03
Relationship with Father						
Acceptance	4.25[b]	3.79[a]	3.84[a]	3.97[a]	27.14	.06
Fostered Independence	3.88[b]	3.61[a]	3.63[a]	3.84[b]	16.76	.04
Idealization of Father	3.19[b]	2.72[a]	2.75[a]	3.06[b]	14.30	.03

Note. df = 3, 1355. All tests were significant at $p < .001$. Within each row, means whose superscripts differ are significantly different at $p < .05$.

Table 8
Correlations Between Personality-Disorder Ratings and Perceptions of Childhood Relationships with Parents

	Perceptions of Childhood Relationships with Parents					
	Mother Scales			Father Scales		
Personality-Disorder rating	Fostered independence	Warm acceptance	Was the ideal parent	Fostered independence	Warm acceptance	Was the ideal parent
Schizoid	–.08	–.17	–.15	–.10	–.19	–.12
Schizotypal	–.18	–.24	–.14	–.21	–.23	–.14
Paranoid	–.19	–.21	–.12	–.24	–.22	–.13
Avoidant	–.23	–.19	–.12	–.19	–.21	–.12
Dependent	–.21	–.15	–.07	–.15	–.11	–.04
Obsessive-Compulsive	–.22	–.20	–.10	–.22	–.17	–.08
Passive-Aggressive	–.22	–.21	–.18	–.18	–.17	–.12
Self-Defeating	–.20	–.23	–.14	–.20	–.24	–.12
Histrionic	–.13	–.15	–.07	–.14	–.17	–.07
Narcissistic	–.20	–.22	–.15	–.19	–.19	–.12
Borderline	–.20	–.25	–.20	–.23	–.26	–.17
Antisocial	–.10	–.15	–.12	–.09	–.12	–.04
Sadistic	–.17	–.16	–.05	–.14	–.11	.00

Note. All correlations larger than .09 are significant at $p < .001$. Gender was partialed from all correlations, which were computed based on $N = 1371$ to 1401.

Finally, we correlated the six parental-perception scales with the five higher-order factors underlying the attachment and personality-disorder measures. (These correlations are shown in Table 9.) The use of the higher-order factors makes it easy to see at a glance which aspects of attachment and personality disorders are associated with recollections of nonoptimal parental caregiving. Maternal and paternal caregiving reports were associated with the first (Insecurity) attachment factor and with the first (Generalized Pathology) and third (Psychopathy) personality-disorder factors. Defensive Emotional Style (arising from the attachment measures) and Counter-Dependence (arising from the personality-disorder measures) were weakly associated with reports of a parental caregiving style that emphasized independence, and were also associated with a tendency to idealize fathers.

DISCUSSION

The primary purpose of this study was to examine possible associations between attachment styles and personality disorders. We hypothesized that attachment style would be associated with all of the personality disorders and share most of their underlying structure. Results revealed that, first, attachment styles are related to personality disorders (in a sample that is, presumably, mostly within the normal spectrum). Evidence for convergence emerged whether categorical or dimensional measures of personality disorders were used.

Second, information about the underlying common structure of the two kinds of measures was obtained when we conducted a discriminant analysis predicting attachment-style categories from all 13 personality disorders. The set of personality-disorder scales formed a first function that appeared to assess generalized pathology (disordered thoughts and negative attitudes about others), and this function discriminated secures from insecures with low self-esteem, particularly fearful individuals. The second personality-disorder function appeared to assess overdependency, and distinguished preoccupied from dismissing individuals. The third function, which was only marginally significant, appeared to assess a tendency toward interpersonal aggression and callousness.

Third, consistent with previous theory (Bartholomew, 1990), attachment patterns are arrayed in a two-dimensional space. When we conceptualize the dimensions in terms of relations among the measures, the dimensions are secure versus fearful (or maximally insecure) and dismissing

Table 9
Correlations Between Higher-Order Factors and Perceptions of Childhood Relationships with Parents

	Perceptions of Childhood Relationships with Parents					
	Mother Scales			Father Scales		
Higher-order factor	Fostered independence	Warm acceptance	Was the ideal parent	Fostered independence	Warm acceptance	Was the ideal parent
Insecurity	–.20***	–.26***	–.20***	–.22***	–.27***	–.18***
Defensive Emot. Style	.09**	.01	.04	.07*	.05	.06*
Generalized Pathology	–.29***	–.31***	–.19***	–.29***	–.31***	–.18***
Counter-Dependence	.10***	.03	–.01	.06*	.01	–.01
Psychopathy	–.19***	–.24***	–.16***	–.17***	–.19***	–.08**

Note. Gender was partialed from all correlations, which were computed based on $N = 1344$ to 1401.
* $p < .05$. ** $p < .01$. *** $p < .001$.

versus preoccupied. We have named the first attachment-related factor Insecurity and the second Defensive Emotional Style. These data replicate the findings of other researchers who have uncovered a two- dimensional structure underlying attachment measures (e.g., Brennan et al., 1998).

Fourth, our data show that personality disorders are empirically arrayed in a three-dimensional space. The first personality-disorder factor, General Pathology, consisted of six scales assessing thought disorders and troubled interactions with others. The second personality-disorder factor, Counter-Dependence, consisted of the Schizoid, Dependent, and Histrionic scales (the latter two correlated negatively with this factor). The third personality-disorder factor, Psychopathy, includes personality-disorder scales that tap aggressive behavior (Antisocial, Sadistic, Passive-Aggressive, and Narcissistic). These three factors are very similar to the three discriminant functions that emerged in the analysis in which the personality-disorder scales were used to discriminate attachment styles.

Fifth, two of the three personality-disorder dimensions appear to overlap very clearly with the attachment dimensions. The first personality-disorder factor, General Pathology, coincides well with the first attachment factor, Insecurity. The second personality-disorder factor, Counter-Dependence, coincides well with the second attachment factor, Defensive Emotional Style. The third personality-disorder factor, Psychopathy, correlates only modestly with the first attachment factor, and not at all with the second. Thus, most of the personality-disorder scales appear to map onto the two-dimensional space represented by the attachment measures.

The presence of the Psychopathy personality-disorder factor indicates, however, that some kinds of personality disorders are not so highly related to the two dimensions underlying the attachment measures. This factor included the Antisocial, Sadistic, Passive-Aggressive, and Narcissistic scales, which share items related to impulsive, remorseless, destructive behaviors. Psychopathy researchers have agreed on a two-factor definition of psychopathy: The first factor is impulsive, antisocial, or criminal behaviors; the second factor is manipulativeness, deceitfulness, egocentrism, and lack of empathy for others' suffering (Hare, 1993). Some theorists point to social or environmental conditions that give rise to psychopathy (Olwens, Block, & Radke-Yarrow, 1986, as cited in

Dutton, 1995). Others have demonstrated at least some evidence of genetic transmission for psychopathy (Livesley et al., 1993).

Our three higher-order personality-disorder factors bear scant resemblance to the three DSM-III-R clusters. Two of the scales we included, Sadistic and Self-Defeating, are not part of the three clusters. We therefore removed those two scales to make a cleaner comparison. The first personality-disorder factor (Avoidant, Schizotypal, Paranoid, Obsessive-Compulsive) correlated highly with two of the three Cluster A disorders (Paranoid, Schizoid, Schizotypal). The third personality-disorder factor (Antisocial, Borderline, Passive-Aggressive, and Narcissistic) correlated highly with three of the four Cluster B disorders (Antisocial, Borderline, Histrionic, Narcissistic). But the second personality-disorder factor (Schizoid, Histrionic, and Dependent) correlated substantially with only one of the disorders in Cluster C (Avoidant, Dependent, Obsessive-Compulsive, Passive-Aggressive).

A secondary purpose of the present study was to explore connections between attachment, personality disorders, and three family-background factors: parental death, parental divorce, and current representations of early childhood relationships with parents. Both attachment style and personality disorders are associated with parental divorce, but only attachment style is associated with parental death (i.e., those with dismissive, or emotionally defensive styles, more often reported the loss of one or both parents). Although we cannot know how our participants were actually treated in childhood, attachment insecurity and two of the three personality-disorder factors were related to current representations of childhood relationships with parents. The two personality-disorder factors related to parental treatment were most closely related to attachment insecurity (Generalized Pathology and Psychopathy), rather than to the other attachment dimension, Defensive Emotional Style.

Do Attachment Styles and Personality Disorders Share Common Origins?

Based on our findings, we suggest that patterns of insecure attachment overlap with patterns of disordered personality, many of which are moderately related to each other. Thus, it would be parsimonious to consider the idea that the same environmental conditions that give rise to insecure attachment also contribute to at least some personality disorders. Of course, it is likely that such environmental conditions combine with,

or interact with, inborn temperaments (e.g., behavioral inhibition). In addition, cultural variations in the extent to which particular traits (e.g., independence, eccentricity) are valued are also likely to result in cross-cultural differences in the expression of personality. Neither option, however, is incompatible with the idea that the quality of one's early attachment to caregivers accounts for some of the variance in abnormal, or maladaptive, personality functioning. In fact, at first glance, it is astonishing that such connections have been largely overlooked. Such oversight may be due to discrepancies in method and choice of research subjects in the domains of attachment, on the one hand, and personality disorders, on the other. Ainsworth's and others' attachment research was grounded in orthodox developmental methods: behavioral observations of young children and their parents. In contrast, the study of personality disorders has traditionally relied on the retrospective reports of disturbed adults in therapy.

That the two domains would eventually converge on the same disordered relationship patterns is therefore not surprising and, we think, would not have surprised John Bowlby. Throughout his career, Bowlby theorized about the mechanisms likely to account for adolescent and adult psychopathology (1944, 1973, 1977, 1980, 1988). Particularly noteworthy is Bowlby's distinction between "feeling alarmed" and "feeling anxious." Drawing on a military analogy, Bowlby (1973) described how an army's safety depends:

> not only on its defending itself against direct attack but also on its maintaining open communication with its base. Any military commander who fails to give as much attention to his base and lines of communication as to his main front soon finds himself defeated. . . . [A similar situation] holds between an individual and his attachment figure. Each party is autonomous. Given basic trust the arrangement can work well. But any possibility of defection by the attachment figure can give rise to acute anxiety in the attached. And should he be experiencing alarm from another source at the same time, it is evident that he is likely to feel the most intense fear. (pp. 93–94)

Theoretically, environmental threats should provoke withdrawal, freezing, or escape behavior. In a well-functioning goal-corrected partnership between child and parent, such escape usually entails escaping to an attachment figure. The failure, however, to establish a well-functioning

partnership with a caregiver means that an infant may develop the chronic perception that help is unavailable when needed, or, at best, is inconsistently available. In other words, distress may result from either perceived threats from the environment or perceived lack of support from one's caregivers. According to Bowlby (1973), the combination of both, experienced often enough throughout the course of development, is likely to produce the most acute forms of psychopathology.

It is possible to delineate the four adult attachment patterns identified by Bartholomew (1990) in terms of Bowlby's distinction between perceived support from attachment figures and perceived threat from the environment. Secure individuals trust their attachment figures and perceive little environmental threat; as a result, confident of their attachment figure's reliability, secures can defend themselves against environmental threats, and hence are able to process emotions in a fluid and nondefensive manner and remain the least troubled by personality disorders. Dismissing individuals, chronically lacking support from attachment figures, may, as a result, habitually deny or dismiss environmental threats. They may therefore have a higher threshold for experiencing negative emotions or perceiving attachment needs, and thus exhibit what Bowlby called compulsive self-reliance. Preoccupied individuals, wary following a history of inconsistent support from caregivers, are likely to have a lower threshold for perceiving environmental threat. Such a low threshold for experiencing distress, in combination with mixed perceptions of support from caregivers, is likely to contribute to frequent activation of the attachment system, with all the concomitant distress and anger such activation provokes. Hence, they are likely to suffer from compulsive care-seeking, dependency, and Histrionic personality disorder. Lastly, fearful individuals, who may be the adult versions of disorganized/disoriented infants, appear to be the most troubled in terms of personality disorders. New evidence has emerged that disorganized/disoriented infants experience frightening behavior from attachment figures; their attachment figures, in turn, are more likely to reveal themselves in the Adult Attachment Interview as "Unresolved" with respect to loss or trauma (Lyons-Ruth & Jacobvitz, in press).

Limitations and Directions for Future Research

One obvious limitation of our research is its use of a nonclinical sample. To some extent, this limitation turns on whether one accepts a purely

categorical (vs. dimensional) understanding of personality disorders. If, as we do, one assumes that personality disorders can be arrayed on continua, then our results ought to generalize to clinical populations. It would be desirable to conduct a similar study in a large enough (i.e., general population) sample that would allow a credible test of the categories versus dimensions question. If, on the other hand, one assumes that personality disorders reflect true taxons, then our results may not generalize well to clinical populations. In particular, our measure of personality disorders suffers from an overinclusion bias. Examining all 13 personality disorders together, three-fourths of the sample had at least one personality disorder. This fact is consistent with the PDQ-R's positive bias (cf. Moldin et al., 1994).

The prevalence of individual personality disorders in our sample is generally consistent with previous research, but four scales' prevalences were higher than is generally found in clinical samples: Paranoid, Histrionic, Borderline, and Obsessive-Compulsive. Note that, when standard scoring methods were used, these four disorders occurred relatively frequently in the two college student studies by Johnson and colleagues, and three of the four (i.e., all but Borderline) occurred relatively frequently in the medical student study by Maffei et al. (1995). Why the higher prevalence rates for these disorders? We draw the same conclusions as did Johnson and Maffei and their colleagues. First, our sample's higher scores on the Paranoid and Obsessive-Compulsive scales may reflect high intelligence and work standards in college student populations. Second, several items on the Borderline and Histrionic scales appear related to patterns of thoughts, feelings, and behavior more typical of adolescence than adulthood. Our young sample (median age = 18) may be relatively more concerned than older adults with appearance and gossip; may be more moody and impulsive, particularly with regard to behaviors involving sex, drugs, and alcohol; and may experience enhanced difficulties stemming from exploring conflicting beliefs, social networks, and occupational goals. Not surprisingly, researchers have reported higher rates of personality disorders in adolescents than in adults (Bernstein et al., 1993; Johnson et al., 1996; Maier, Lichtermann, Klingler, Heun, & Hallmayer, 1992; Swartz, Blazer, George, & Winfield, 1990).

A second, related limitation of our research is its reliance on a self-administered measure of personality disorders, which requires a fair degree of insight on the part of respondents. Although the PDQ-R is reliably associated with clinicians' classifications (49% to 58%; Hyler et

al., 1990), the overlap is not perfect. When Johnson et al.'s (1996) more stringent scoring criteria are used, however, prevalence rates of personality disorders assessed with the PDQ-R more closely resemble prevalence rates reported for nonclinical samples using structured clinical interviews (Maier et al., 1992; Coryell & Zimmerman, 1989). Therefore, it would be desirable to test the associations between attachment styles and personality disorders assessed via structured clinical interviews and self-administered measures in the same sample.

A third limitation of the current research is its cross-sectional nature. Longitudinal research is needed to tease apart causal relations between attachment and personality disorders, on the one hand, and family variables, on the other. It is unlikely, however, that even with a longitudinal design one could determine the ontological primacy of attachment styles versus personality disorders. Although attachment styles are observable in the first year of life, only a handful of disorders resembling adult personality disorders are detectable from behavioral observations of young children. Two examples come to mind. First, Separation Anxiety Disorder in childhood appears similar in many respects to Dependent personality disorder in adulthood, and to anxious (or preoccupied) attachment in both childhood and adulthood. Separation Anxiety Disorder is characterized by "excessive anxiety concerning separation from the home or from those to whom the person is attached . . . beyond what is expected for the individual's developmental level" (APA, 1994, p. 110). Second, childhood disruptive behavior disorders seem similar in many ways to psychopathy in adulthood and may be associated with the "Disoriented/Disorganized" infant attachment pattern (Lyons-Ruth, 1996). Two childhood disruptive behavior disorders are worth mentioning. Conduct Disorder is a "repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated" (APA, 1994, p. 85). This disorder includes aggression directed toward other people or animals, property damage (e.g., fire-setting, window-smashing), theft, deceitfulness, or other serious violations of rules. Oppositional Defiant Disorder, which is often a precursor to Conduct Disorder, includes "negativistic, defiant, disobedient, and hostile behavior [directed] toward authority figures" (APA, 1994, p. 91), but excludes the more serious aggression and rule violations of Conduct Disorder. Other personality disorders cannot be assessed behaviorally in very young children, perhaps because a significant cognitive component is necessary (e.g., Paranoid, Obsessive-Compulsive, or

Schizotypal personality disorders). (See also Zeanah, 1996, for a review of infant attachment disorders.)

In summary, there is a fair degree of overlap between attachment styles and personality disorders, and both sets of variables are associated with family variables. Future research should focus on elucidating the developmental antecedents of personality disorders to determine which ones are shared by patterns of insecure attachment, and which are separate. Given the relative lack of understanding of the etiology of personality disorders, we hope that clinicians and researchers studying personality disorders will consider attachment theory as a framework for exploring possible origins of personality disorders. In addition to investigating developmental antecedents of personality disorders, future research should compare attachment styles and personality disorders in their ability to predict patterns of intrapersonal processes (e.g., affect-regulation and coping with distress) as well as interpersonal functioning over time. We hope that the present study, connecting attachment styles and personality disorders with each other and with family variables, is a useful first step.

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